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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,609	09/08/2003	Patrick James McGuinness	SC12009TS	1773

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EXAMINER

DOAN, NGHIA M

ART UNIT PAPER NUMBER

2825

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/657,609

Applicant(s)

MCGUINNESS ET AL.

Examiner

Nghia M. Doan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-13 is/are allowed.
- 6) ☒ Claim(s) 1-3, 14-18 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 4-8, 19-22, and 27-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/08/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Responsive to communication application filed on 09/08/2003, claims 1-29 are pending.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Russian Federation on 09/20/2002. It is noted, however, that applicant has not filed a certified copy of the PCT/RU02/00430 application as required by 35 U.S.C. 119(b).

Drawings

3. The drawings are objected to because figure 2 does not show where is the output of element 50 going. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after

the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested " Method for automated transistor folding".

5.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)),

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and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention

described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

6. The specification is objected by Examiner, because application does not comply with the formal format, which lacks to disclose the summary of the invention.

Claim Objections

7. Claim 15 is objected to because of the following informalities: this claim is confusing that it depends itself.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-3, 14-18, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saika (US 5,995,734).

10. With respect to claims 1, 14-16, and 23-26, Saika teaches a method for generating an integrated circuit layout (abstract) has in input netlist (fig. 3, 13,15, 17, step ST10) with a plurality transistors (fig. 4, 5, and 14). According to figure 2 in Saika's reference and application's figure 1, the height and width in are equivalent to width and length of respectively (as claims 1, 14-16, and 23).

The input nestlist is describing a plurality of P- channel transistors, a plurality of N-channel transistors, and a plurality of conductors for interconnecting the plurality of N-channel transistors and the plurality of P-channel transistors (fig. 7, 16, and 18), each of the transistors having a width in a layout corresponding to the integrated circuit netlist (col. 4, ll. 8-14); Moreover, figures 7, 16 and 18 also include more than one widest transistors all have the same width. For example: figure 7 has tp12 and tp11; figure 16 (a) has trc and trd; and figure 18 has P12, P13 and N12, N13, these transistors are widest transistors and have the same width **(as claims 1, 14, 16, 23 and 25).**

Specifically, figure 16 (a) and (b) suggest that the transistors trc, trd, (list of P-channel) trg, trh (list of N-channel) are widest transistors; and for example the transistor trg is folded in two small fingers (leg) trg1 and trg2, which have smaller width compared to trg **(as claims 1, 14 and 16)**; figures 5 and 7 are represented for dependency mapping list dependent pair of N-channel and P-channel transistors from the integrated

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circuit netlist and figures. 8-10, col. 12, ll. 22-57, and col. 13, ll. 1- 42 –suggest the mapping technique (**as claims 1 and 23**); before folding process, Saika generates a height lower bound by summing up the widths (heights) of the dependent pairs (col. 16, ll. 55-56); if the dependent pair having a height lower bound exceed a set (predetermined) value of the cell height (col. 16, ll. 55-63), then performed folding transistors to produce an N-channel dependent fold list and a P-channel dependent fold list (col. 4, ll. 7-31; col.5, ll. 45-67 and col. 6, ll. 1-22) (**as claims 1, 24 and 25**).

Saika does not specifically teach a folding solution (**as claims 1, 14 and 23**), but Saika does teach a method of determining which transistor needs to be folded based on predetermined height value of cell and wiring density in layout (col. 16, ll. 55-60), and then made decision of folding.

It would have been obvious at the time the invention to one of ordinary skill in art would recognize that Saika's method of folding transistors that is a folding solution for optimized space by reduce the width of the cell layout and improves the transistors placement that based on a predetermined value of the cell height and wiring density solutions (col. 4, ll. 10-15 and ll. 55).

11. With respect to claims 2, 3, 17, and 18, Saika teaches all the limitations as set forth claims. Further, Saika teaches the method for generating an integrated circuit layout (abstract) has in input netlist (fig. 3, 13,15, 17, step ST10) with a plurality transistors (fig. 4, 5, and 14)(**as claim 2, 3, 17, and 18**). The input nestlist is describing a plurality of P- channel transistors, a plurality of N-channel transistors, and a plurality of conductors for interconnecting the plurality of N-channel transistors and the plurality of

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P-channel transistors (fig. 7, 16, and 18, col. 4, ll. 8-14), and creating an independent N-channel and P-channel fold solution lists (group) (fig.5, step ST11; col. 10, ll. 43-67 and col. 11, ll. 1-34) **(as claims 3, and 18)** repeated for each of plurality of transistors until all of the plurality of transistor have been folded at least once (col. 12, ll. 34-44) **)(as claim 2, 3, 17, and 18).**

Allowable Subject Matter

12. Claims 9-13 are allowed.

13. Claims 4-8, 19-22 and 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to disclose merging the independent and dependent folding list of each N-channel and P-channel.

Conclusion

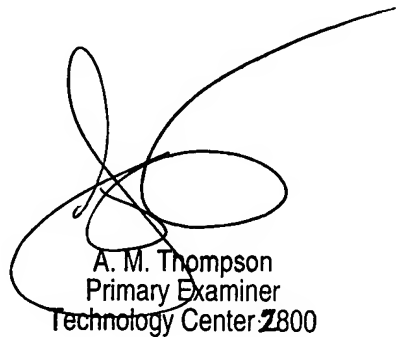
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghia M. Doan whose telephone number is 571-272-5973. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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